



MDC Resource Science

Evaluation of Oak Stump Sprouting in the Missouri Ozarks Ten Years After Harvest

Science Notes



Evaluation of Oak Stump Sprouting in the Missouri Ozarks Ten Years After Harvest

By Randy G. Jensen and Daniel C. Dey



Summary

Managers in Missouri often want to manage forests to retain oak in the future. Oaks are valuable for timber and many wildlife species depend on acorns. Large advance reproduction and stump sprouts are the most competitive sources of regeneration. It is well known that oak stump sprouts contribute to future stands in even-age clearcuts in the

Goal: Determine the survival and growth of white oak, black oak, and scarlet oak stump sprouts 10 years after harvests by different management styles.

Missouri Ozarks, but there is a lack of long term data. There is little known about survival and growth of oak sprouts in small uneven-age group openings or in single-tree selection harvests. The Missouri Ozark Forest Ecosystem Project (MOFEP) provided a good opportunity to study the growth and survival of white oak, black oak and scarlet oak stump sprouts from these three different management options. The first MOFEP harvest occurred in the summer of 1996 and data were collected on the tallest stump sprout of 702 stumps in the spring of 1998 (one growing season after harvest). Data was again collected in the fall of 2006 (ten growing seasons).

Results

In clearcuts, the percentage of stumps with surviving sprouts was high among all 3 species (73-75%). Group selection cuts had sprouts survive on 63-76% of the stumps. Stump sprout survival was less in single-tree

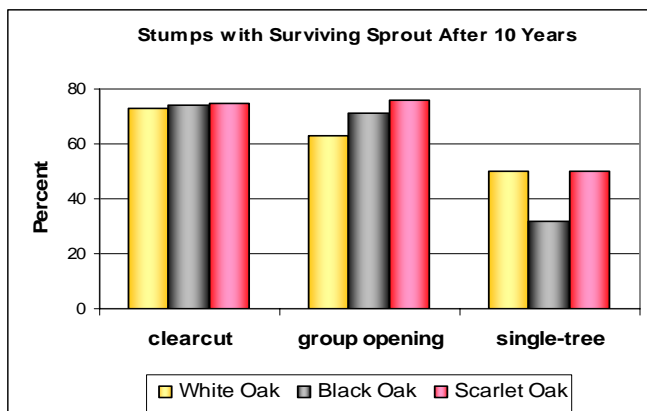


Figure 1. Percent of stumps that had at least one surviving sprout 10 years after harvest by species and harvest treatment.

selection harvests and ranged from 32-50% (Figure 1). The dominant sprout was tallest in clearcuts, intermediate in group openings and much smaller in single-tree selection cuts. Scarlet oak stump sprouts were taller on average than sprouts of white oak and black oak (Figure 2).

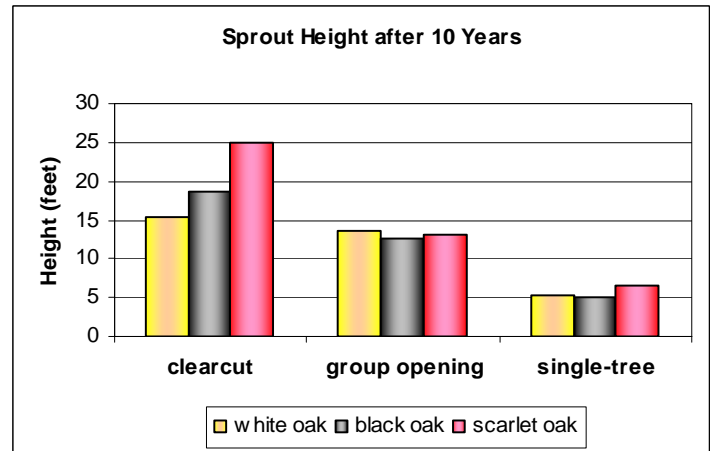


Figure 2 Mean height of dominant stump sprouts 10 years after harvest by species and harvest method .

Oak sprouts grew the most in diameter breast height (dbh) in clearcuts for all oak species. Sprouts had intermediate diameter growth in group openings and the smallest diameter growth in single-tree selection cuts (Figure 3).

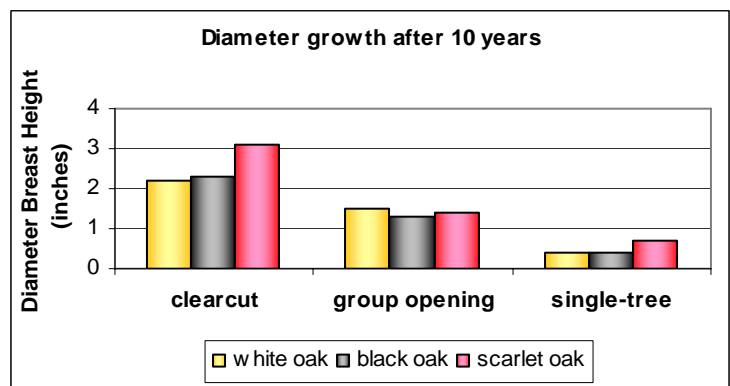


Figure 3. Mean diameter growth (dbh) of dominant stump sprouts 10 years after harvest by species and harvest method.

For more information, contact:

Missouri Department of Conservation
Rt. 2 Box 198
Ellington, MO 63638
573/663-7130
Randy.Jensen@mdc.mo.gov

Keywords: stump sprouts, MOFEP, oak regeneration, forest management